content;

d) displacing the axes in a second direction substantially orthogonal to the first direction at the marking station; and

e) controllably steering the focused laser beam along the displaced axes to mark a second predetermined region on the at least one article based on the input data.

2. (original) The method as claimed in claim 1 further comprising the steps of sensing at least one portion of the at least one article at the marking station and providing a corresponding signal representative of an image of the at least one portion and offsetting at least one of the axes prior to step c) based on the signal.

3. (original) The method as claimed in claim 1 wherein the articles are substantially stationary during step c).

4. (original) The method as claimed in claim 1 wherein the articles are controllably conveyed during step c).

5. (original) The method as claimed in claim 2 wherein the step of sensing includes the step of scanning a region of the at least one article containing a known feature of the at least one article and providing a corresponding image signal and offsetting at least one of the axes prior to step c) based on the image signal.

6. (original) The method as claimed in claim 1 wherein the articles are printed circuit boards.

7. (original) The method as claimed in claim 1 wherein the articles are integrated circuits.

8. (original) The method as claimed in claim 1 wherein the articles are semiconductor packages.

9. (original) The method as claimed in claim 1 wherein a marking pattern including a plurality of spots, each having a size of about 25-50 microns, is marked on each of the articles.

10. (original) A laser scanning system for marking articles, the system comprising:

a conveyor for conveying the articles in a first direction at a marking station;

a conveyor controller for controlling the conveyor in response to conveyor control signals;

a laser and an optical subsystem optically coupled to the laser for generating a focused laser beam in response to laser control signals;

a scan head including a laser beam deflector for steering the focused laser beam along two substantially orthogonal intersecting axes at the marking station to mark a first predetermined region on at least one of the articles in response to deflection control signals;

an actuator coupled to at least part of the scan head for displacing the axes in a second direction substantially orthogonal to the first direction at the marking station in response to displacement control signals wherein the laser beam deflector steers the focused laser beam along the displaced axes to mark a second predetermined region on the at least one article; and

a central controller for generating the deflection control signals, the laser control signals, the displacement control signals and the conveyor control signals in response to input data representing marking locations and marking content.

11. (original) The system as claimed in claim 10 further comprising a machine vision subsystem for sensing at least one portion of the at least one article at the marking station and providing a corresponding image signal representative of an image of the at least one portion, the central controller generating an offset signal in response to the image signal for offsetting at least one of the axes.

12. (original) The system as claimed in claim 11 wherein the machine vision subsystem includes a lighting assembly for illuminating the articles at the marking station.

13. (original) The system as claimed in claim 12 wherein the lighting assembly includes a pulsed illumination subsystem.

14. (original) The system as claimed in claim 10 wherein the laser beam deflector includes a two dimensional, addressable galvanometer.

15. (original) The system as claimed in claim 10 further comprising a second laser for generating a scanning laser beam, the laser beam deflector steering the scanning laser beam along the axes to scan a region of the at least one article containing a known feature of the at least one article and providing a corresponding image signal, the central controller generating an offset signal in response to the image signal for offsetting at least one of the axes.

16. (original) The system as claimed in claim 10 wherein the articles are printed circuit boards.

17. (original) The system as claimed in claim 10 wherein the articles are integrated circuits.

18. (original) The system as claimed in claim 10 wherein the articles are semiconductor packages.

19. (original) The system as claimed in claim 10 wherein a marking pattern including a plurality of spots, each having a size of about 25-50 microns, is marked on each of the articles.

20. (original) The system as claimed in claim 10 wherein the conveyor is capable of being controllably positioned by the conveyor controller with a positioning accuracy of about 5 mils.

Please add new claims 21-29 as shown below.

21. (New) In a laser marking system for high resolution marking of printed circuit boards (PCBs), chip scale packages (CSPs), microball grid arrays (u-BGAs) or similar articles, the marking to occur at a marking station having a laser marking head, a marking beam, and a beam positioner, a method of beam position control using circuit features comprising:

positioning a machine vision subsystem at a location disjoint from the laser marking head;

positioning an article to be marked within the marking station;

obtaining image data from a portion of an article to be marked using the machine vision subsystem;

locating a feature of the article using the image data to obtain a feature location;

calculating at least an offset between a location to be marked on an article and the marking beam using the feature location;

adjusting the position of the marking beam based on the offset to obtain an adjusted marking beam; and

marking the article with the adjusted marking beam at a specified location within a marking field.

22. (New) The method of claim 21 wherein a plurality of features are located on at least one article and wherein the step of calculating includes calculating the offset and a rotation.

23. (New) The method of claim 21 wherein the articles are IC packages, chip scale packages, or die and wherein specified locations for marking are in close proximity to circuit elements.

24. (New) The method of claim 21 wherein the circuit features are circuit traces or interconnects.

25. (New) The method of claim 24 wherein at least one of the interconnects is a grid array element.

26. (New) The method of claim 21 wherein the circuit features are fiducials or ID marks.

27. (New) The method of claim 21 wherein the articles are marked in specified regions with a plurality of spots, each of the spots having a size of about 25-50 microns.

28. (New) The method of claim 21 further comprising automatically adjusting height of the laser marking head relative to the article.

29. (New) The method of claim 21 wherein the marking field is about 100 mm square.